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[\[PDF \(1142K\)\]](#) [\[References\]](#)**Enamel bonding of self-etching and phosphoric acid-etching orthodontic adhesives in simulated clinical conditions: Debonding force and enamel surface**[Shinya HORIUCHI^{1\)}](#), [Kazuyuki KANEKO^{1\)}](#), [Hiroko MORI^{1\)}](#), [Emi KAWAKAMI^{1\)}](#), [Takashi TSUKAHARA^{2\)}](#), [Kohji YAMAMOTO^{3\)}](#), [Kenichi HAMADA^{4\)}](#), [Kenzo ASAOKA^{4\)}](#) and [Eiji TANAKA^{1\)}](#)

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Abstract:

This study aimed to evaluate the effectiveness of self-etching and phosphoric acid-etching orthodontic adhesives for enamel bonding in simulated clinical conditions. By using two self-etching (Transbond Plus, TP; Beauty Ortho Bond, BB) and two acid-etching (Transbond XT, TX; Superbond Orthomite, SB) adhesives, orthodontic brackets were bonded on human premolars ($n=10$ for each adhesive). Ten teeth without bracket bonding, *i.e.*, intact enamel surfaces, were used as control for SEM observation. After 7-day storage in lactic acid solution, bracket debonding force by means of debonding pliers, adhesive remnant index (ARI), and enamel surface morphology were examined. All the tested adhesives exhibited sufficient bond strength for clinical use. The ARI scores were almost the same among the four adhesives. In terms of SEM observation, the enamel surfaces in the control and TP groups showed a slight change after immersion in lactic acid solution, while the BB group showed less change on the enamel surface compared with the TP group. Meanwhile, the two acid-etching adhesives caused considerable demineralization. Taken together, these

findings indicated that the action of self-etching systems was evidently more conservative.

Key words:

[Self-etching](#), [Phosphoric acid-etching](#), [Orthodontic adhesive](#)

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